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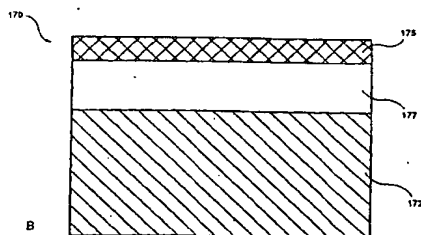
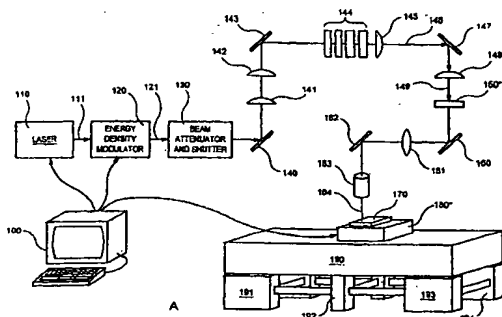
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **PROCESS AND SYSTEM FOR LASER CRYSTALLIZATION PROCESSING OF FILM REGIONS ON A SUBSTRATE TO PROVIDE SUBSTANTIAL UNIFORMITY WITHIN AREAS IN SUCH REGIONS AND EDGE AREAS THEREOF, AND A STRUCTURE OF SUCH FILM REGIONS**



(57) Abstract: A process and system for processing a thin film sample, as well as the thin film structure are provided. In particular, a beam generator can be controlled to emit successive irradiation beam pulses at a predetermined repetition rate. Each irradiation beam pulse may be masked to define a first plurality of beamlets and a second plurality of beamlets. The first and second plurality of beamlets of each of the irradiation pulses being provided for impinging the film sample and having an intensity which is sufficient to at least partially melt irradiated portions of the section of the film sample. A particular portion of the section of the film sample is irradiated with the first beamlets of a first pulse of the irradiated beam pulses to melt first areas of the particular portion, the first areas being at least partially melted, leaving first unirradiated regions between respective adjacent ones of the first areas, and being allowed to resolidify and crystallize. After the irradiation of the particular portion with the first beamlets, the particular portion is again irradiated with the second beamlets of a second pulse of the irradiated beam pulses to melt second areas of the particular portion, the second areas being at least partially melted, leaving second unirradiated regions between respective adjacent ones of the second areas, and being allowed to resolidify and crystallize. The first irradiated and re-solidified areas and the second irradiated and re-solidified areas are intermingled with one another within the section of the film sample. In addition, the first areas correspond to first pixels, and the second areas correspond to second pixels.

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US03/25972

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : C 30 B 13/06, 13/16, 13/22, 13/24, 13/28, 13/30

US CL : 117/46, 47, 43, 44, 904

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 117/46, 47, 43, 44, 904

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONEElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
WEST: search terms; laser, crystal, scan, beams**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,691,983 A (KOBAYASHI et al.) 08 September 1987 (08.09.1987).	1-65
A	US 5,304,357 A (SATO et al.) 19 April 1994 (19.04.1994).	1-65
A	US 5,591,668 A (MAEGAWA et al.) 07 January 1997 (07.01.1997).	1-65
A	US 6,368,945 B1 (IM) 09 April 2002 (09.04.2002).	1-65
A	US 2001/0041,426 A1 (IM) 15 November 2001 (15.11.2001).	1-65

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